

SUPPORT FOR THE AMENDMENT

Claims 1-10 were previously canceled.

Support for the amendment to Claims 11, 21 and 28 is found on page 4, lines 7-13 in the specification where distillation under reduced pressure is described as any distillation which is carried out at a pressure of less than 1.013 bar.

Further support for the amendment to Claims 11, 21 and 28 is found on page 3, line 21, where the solvent content and particularly the methanol content of the propylene oxide separated off from the mixture (M1) is generally not more than 500 ppm.

Support for the amendment to Claims 18 and 27 is found on page 8, first paragraph, and specifically at lines 14-17, in the specification.

No new matter will be added to this application by entry of this amendment.

Claims 11- 28 are active.

REQUEST FOR RECONSIDERATION

The claimed invention is directed to a process for the production of propylene oxide which provides significantly improved energy balance relative to conventional processes.

The presently claimed invention addresses this problem by providing a process for preparing propylene oxide, which comprises at least the steps (iii) and (iv):

(iii) separating off propylene oxide from a mixture (M1) comprising propylene oxide and at least one solvent by distillation in a distillation column, giving a bottom stream and a vapor stream consisting essentially of propylene oxide, wherein the distillation is carried out at a pressure of less than 1.013 bar;

(iv) compressing the vapor stream obtained in (iii) by means of at least one compressor to give a compressed vapor,

wherein the solvent content of the vapor stream in (iii) is not more than 500 ppm.

No such process is disclosed or suggested in the cited references.

The rejection of Claims 11-17, 19 and 20, 21 through 26, and 28 under 35 U.S.C. 103(a) over Rueter (U.S. 6,024,840) in view of Cornell (U.S. 2,509,136) is respectfully traversed.

Neither reference discloses or suggests the process of the claimed invention as described in Claim 11 of the above-identified application and the description of the two references when combined do not anticipate or render obvious the claimed invention.

Rueter is directed to a method of recovering propylene oxide, having a low acetaldehyde content, from an epoxidation mixture obtained by reaction of propylene with hydrogen peroxide in the presence of a titanium silicate catalyst wherein methanol is a solvent. Rueter describes distillation of the epoxidation mixture at a pressure of from 15 to about 50 psia and indicates that the resulting overhead stream comprises sufficient methanol to render the acetaldehyde less volatile. Rueter's Claim 1 includes the following description:

“(c) withdrawing a first overhead stream comprised of propylene oxide and **at least 2 weight percent methanol** and having a reduced level of acetaldehyde as compared to the crude epoxidation reaction product from the first fractionator;”(Bold added)

Applicants respectfully note that Rueter specifically describes 1)distillation at elevated pressure – 15 to 50 psia; and 2) that the overhead stream must comprise at least 2 weight percent methanol. Moreover, Rueter neither discloses nor suggests that the overhead stream be compressed to give a compressed vapor.

In contrast, the presently claimed invention describes that the distillation is carried out at a pressure **less than 1.013 bar** and that the **solvent content of the vapor stream is not more than 500 ppm**. In addition, the vapor stream is compressed to give a compressed vapor. Applicants note that 15 to 50 psia is equivalent to 1.035 to 3.44 bar. (Conversion factor – 0.069 bar/psia)

The Office has admitted that Rueter does not disclose or suggest compressing the vapor stream. Cornell is therefore cited to show the use of a compressor to compress the overhead fraction vapors in the distillation of volatile oxygenated organic compounds from water.

Cornell is directed to a process and apparatus for the concentration of dilute aqueous solutions of vaporizable oxygenated compounds which are formed in side reactions of Fischer-Tropsch synthesis. The **Fischer-Tropsch process** is known to one of general skill in the art to be a catalyzed chemical reaction in which carbon monoxide and hydrogen are converted into liquid hydrocarbons of various forms. This technology is not related to epoxidation technology and therefore, Applicants respectfully submit that one of ordinary skill in the art of epoxidation chemistry would not look to Fisher-Tropsch chemistry for improvement of energy balance in an epoxidation process.

Moreover, Cornell is silent with respect to distillation at a pressure **less than 1.013 bar** and does not disclose or suggest that the **solvent content of the vapor stream is not more than 500 ppm**. On the contrary, in Col. 3, lines 63-66, this reference states:

“should fractionate the solution into a vapor overhead fraction containing most of the oxygenated compounds and comprising **10 to 15 per cent by weight of the feed . . .**”

Therefore, Applicants respectfully submit that Cornell does not cure the deficiency of Rueter described above.

Applicants respectfully call the Examiner’s attention to the following excerpt from the Office’s own discussion of “**Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.***”

“The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by

known methods **with no change in their respective functions**, and the **combination would have yielded nothing more than predictable results** to one of ordinary skill in the art at the time of the invention.⁴³ “[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”⁴⁴ **If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art,”** (Federal Register, Vol. 72, No. 195, page 57529) **(Bold added)**

Applicants respectfully submit that in view of the foregoing discussion Rueter and Cornell individually or in combination do not disclose or suggest all the descriptions of the presently claimed invention. Furthermore, no reason has been cited that would have prompted a person of ordinary skill in the art to combine the unrelated technologies of the cited references. Accordingly, the cited combination of references cannot anticipate or render obvious the presently claimed invention. Withdrawal of the rejection of Claims 11-17, 19 and 20, 21 through 26, and 28 under 35 U.S.C. 103(a) over Rueter in view of Cornell is respectfully requested.

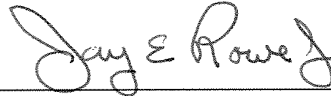
The rejection of Claims 18 and 27 under 35 U.S.C.112, second paragraph is obviated by appropriate amendment. Both claims are amended to include the terminology, “further comprising” and are fully supported in the specification as described in the Support for the Amendment. Withdrawal of the rejection of Claims 18 and 27 under 35 U.S.C.112, second paragraph is respectfully requested.

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Applicants respectfully submit that the above-identified application is now in condition
for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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